CLAIMS:

1. A heart monitoring apparatus comprising:

a memory storing a first set of programming instructions and a second set of programming instructions; and

a digital processor to be coupled to the memory and to receive real time data, said processor to be programmed by the first set of programming instructions to detect with optimum sensitivity one or more potential alarm conditions in the real time data, said processor when executing under the first set of programming instructions to be optimized to minimize power consumption, said processor when executing under the first set of programming instructions to activate the second set of programming instructions upon detection of one or more potential alarm conditions in the real time data, and said processor when executing under the second set of programming instructions to be optimized to maximize specificity for one or more alarm conditions.

2. The apparatus according to claim 1, wherein the processor comprises a variable clock speed processor, and a clock speed of the processor when executing under the first set of programming instructions is selected to minimize power consumption of the processor.

3. The apparatus according to claim 1, wherein the processor includes a variable clock speed, and a clock speed of the processor when executing under the second set of programming instructions is selected to maximize data throughput of the processor.

4. The apparatus according to claim 1, wherein the digital processor comprises:

a first digital processor to receive real time data, said first processor being programmed to detect with optimum sensitivity one or more potential alarm conditions in the real-time data, wherein said first processor is optimized to minimize power consumption; and

a second digital processor being programmed to maximize specificity for one or more alarm conditions, said second processor activated by the first processor upon detection of said one or more potential alarm conditions in the real time data.

5. The apparatus according to claim 4, wherein the first processor includes a clock speed selected to minimize power consumption.

6. The apparatus according to claim 4, wherein the second processor includes a clock speed selected to maximize data throughput.

7. A method for monitoring a heart comprising:

minimizing power consumption during a first stage of processing of the real-time data;

detecting one or more potential alarm conditions during the first stage of processing the real time data;

activating a second stage of processing of the real time data upon detecting said one or more potential alarm conditions; and

increasing data throughput during the second stage of processing to identify one or more alarm conditions among the one or more potential alarm conditions.

8. The method according to claim 7, further comprising:

maximizing specificity for one or more alarm conditions among the one or more potential alarm conditions during the second stage of processing of the real time data.

9. A method for monitoring a heart comprising:

sensing one or more potential alarm conditions with a first algorithm that is optimized to reduce power consumption; and

activating a second algorithm upon sensing one of said one or more potential alarm conditions to determine additional information regarding the sensed one of said one or more alarm conditions.

10. The method according to claim 9, wherein the additional information includes a presence of one or more artifacts.

11. The method according to claim 9, wherein the first algorithm detects one or more life-threatening arrhythmias among electrocardiogram signals, including one or more of the following: ventricular fibrillation, fast ventricular tachycardia, extreme bradycardia and asystole.

12. The method according to claim 11, wherein the first algorithm employs a QRS detector/counter for estimating heart rate, and one or more heart rate thresholds to identify the one or more life-threatening arrhythmias.

13. The method according to claim 9, wherein the second algorithm uses one or more independent estimates of the heart rate to confirm that one or more thresholds have been exceeded.

14. The method according to claim 9, wherein the second algorithm uses one or more parameters estimated from electrocardiogram signals related to ventricular fibrillation and fast ventricular tachycardia to identify an artifact among the electrocardiogram signals.

15. The method according to claim 9, wherein the second algorithm uses a signal derived from a common mode current to identify an artifact among the electrocardiogram signals

16. The method according to claim 9, wherein the second algorithm uses acceleration or patient impedance to identify an artifact among the electrocardiogram signals.

17. The method according to claim 9, further comprising differentiating (44) among the one or more alarm condition to multiple levels of alarm alerts with the second processor.

18. The method according to claim 17, wherein the multiple levels of alarm alerts include a low level alert, a medium level alert and a high level alert.

19. The method according to claim 18, wherein the low level alert indicates detection of one or more conditions that are related to technical aspects of a heart monitoring device.

20. The method according to claim 18, wherein the medium level alert indicates a medical condition has been detected in the patient that may not require immediate medical attention.

21. The method according to claim 18, further comprising alerting a call center upon detecting an alert.

22. A method for monitoring a heart comprising:

employing a first processing stage to process real-time heart data to identify one or more potential alarm conditions, wherein said first processor is optimized to minimize power consumption; and

employing a second processing stage to process data relating to the one or more potential alarm conditions to identify one or more actual alarm conditions among the one or more potential alarm conditions; wherein said second processor is optimized to maximize throughput of the data.

23. The method according to claim 22, further comprising managing signal acquisition, a user interface, and alarm transmission with the first processing stage.

24. The method according to claim 22, further comprising differentiating among the one or more alarm condition to multiple levels of alarm alerts with the second processing stage.

25. The method according to claim 22, wherein the first processing stage comprises a first digital processor executing a first programming and the second processing stage comprises a second digital processor executing a second programming.

26. The method according to claim 22, wherein the first processing stage comprises a digital processor executing a first programming and the second processing stage comprises a said digital processor executing a second programming.